

CALFED Bay-Delta Program Project Information Form
Watershed Program – Full Proposal Cover Sheet

Attach to the cover of full proposal. All applicants must fill out this Information Form for their proposal. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Full Proposal Title: The Arroyo Pasajero Watershed: Restoring the Land for the Water

Concept Proposal Title/Number: The Arroyo Pasajero Watershed: Restoring the Land for the Water / 0050

Applicant: Westside Resource Conservation District

Applicant Mailing Address: 3763 East Robinson, Fresno, CA 93726-5917

Applicant Telephone: (559) 227-2489 Applicant FAX: (559) 227-0215 Applicant Email: redmartin@psnw.com

Fiscal Agent Name (if different from above): Linda Ballentine

Fiscal Agent Mailing Address: 34 Cavalry Ct., Danville, CA 94526

Fiscal Agent Telephone: (925) 855-7185 Fiscal Agent FAX: (925) 855-7195 Fiscal Agent Email: lindabtsa@att.net

2. Type of Project: Indicate the primary topic for which you are applying (check only one)

<input type="checkbox"/>	Assessment	<input type="checkbox"/>	Monitoring
<input type="checkbox"/>	Capacity Building	<input type="checkbox"/>	Outreach
<input type="checkbox"/>	Education	<input type="checkbox"/>	Planning
<input checked="" type="checkbox"/>	Implementation	<input type="checkbox"/>	Research

3. Type of Applicant:

<input type="checkbox"/>	Academic Institution/University	<input type="checkbox"/>	Non-Profit
<input type="checkbox"/>	Federal Agency	<input checked="" type="checkbox"/>	Private Party
<input type="checkbox"/>	Joint Venture	<input type="checkbox"/>	State Agency
<input type="checkbox"/>	Local Government	<input type="checkbox"/>	Tribe or Tribal Government

4. Location (including County):

Arroyo Pasajero Watershed, southwestern Fresno County

What major watershed is the project primarily located in:

<input type="checkbox"/>	Klamath River (Coast and Cascade Ranges)
<input type="checkbox"/>	Sacramento River (Coast, Cascade and Sierra Ranges)
<input type="checkbox"/>	San Joaquin River (Coast and Sierra Ranges)
<input type="checkbox"/>	Bay-Delta (Coast and Sierra Ranges)
<input type="checkbox"/>	Southern CA (Coast and Sierra Ranges)
<input checked="" type="checkbox"/>	Tulare Basin (Coast, Sierra and Tehachapi Ranges)

5. Amount of funding requested: \$ 200,000.00

Cost share/in-kind partners? X Yes No

Identify partners and amount contributed by each:

Individual landowners provide 30% of project costs

6. Have you received funding from CALFED before? Yes X No

If yes, identify project title and source of funds:

By signing below, the applicant declares the following:

1. The truthfulness of all representations in their proposal
2. The individual signing this form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or an organization)
3. The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the Watershed Program Proposal Solicitation Package and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent provided in the Proposal Solicitation Package.

Morris A. Martin, Manager, Westside Resource Conservation
District

Printed name of applicant

1. Describe your project, its underlying assumptions, expected outcomes, timetable for completion, and general methodology or process. (3 pages)

This project involves the development of Ranch and Farm Plans for landowners in the Arroyo Pasajero Watershed that prescribe best management practices and the implementation of projects recommended in the Plans.

The 529 square mile Arroyo Pasajero watershed is substantially impaired due to natural geologic erosion, which is accelerated by the decline of rangeland and riparian vegetation. Significant rainfall creates major floods which move massive amounts of sediment, containing naturally occurring asbestos and other constituents, to the valley floor. Floodwaters accompanied by sediment, asbestos, and salts, end up in retention basins at the California Aqueduct, reducing their ability to manage floods and increasing the frequency of flood flow into the California Aqueduct. This flooding threatens the integrity of the aqueduct and reduces the water quality of aqueduct deliveries to downstream water users. It also costs an average of \$ 42,800,000 per year in extra repairs and maintenance expenses. In March of 1995, this flooding received statewide attention as the watershed runoff took out a bridge on Interstate Highway 5 and resulted in loss of life as well as millions of dollars worth of damage. As a result, landowners in the watershed have formed the Stewards of the Arroyo Pasajero CRMP, whose goal is to reduce flooding and sedimentation through the implementation of best management practices in the Arroyo Pasajero Watershed.

The implementation of best management practices through individual ranch plans will result in improved ranch and farm operations: better distribution of cattle will result to decrease grazing impacts on the watershed, and better stream channel and bank protection will reduce erosion and flooding. Specific goals and objectives are to:

- increase infiltration, decrease runoff and erosion rates,
- reduce sediment transport downstream,
- provide a longer lifetime for the downstream floodwater and sediment basins above the California Aqueduct and along Interstate Highway 5,
- rehabilitate eroded and denuded stream channels,
- enhance riparian ecosystems, improve the habitats for wildlife, and improve water quality,
- improve livestock grazing and management practices, especially with respect to grazing in riparian corridors,
- involve local landowners and communities in educational programs related to watershed and water quality improvements,
- expand the monitoring of water quality and watershed health
- obtain landowner/citizen acceptance and assistance in monitoring

The CRMP has developed a Watershed Management Plan, which identifies the issues behind the flooding and erosion, and has implemented a program through which individual landowners can apply for the development of a ranch or farm plan for their property. The Program focuses on “low-infrastructure” solutions related primarily to drainage, rangeland, and cropland modifications that can be consistently implemented on a watershed-wide basis,

and upholds the traditional land usage. The Program offers (on a cost-share basis with the landowner) funds to make low-tech improvements in infrastructure, primarily in new cross-fencing and water distribution/development. This allows for major improvements in water quality and sediment reduction by instituting better seasonal grazing rotation patterns, achieving better distribution of cattle according to feed availability, better cushion against dry years and limited feed sources, better regeneration of native plant species, better filter strips for sediment reduction, better health in riparian corridors where cattle grazing is deferred when damage to riparian ecosystems is greater, and better sustainability of both agriculture and of the upper watershed natural habitats.

The Practice Cost Summary for the Arroyo Pasajero Watershed, below, itemizes the recommended planning, implementation, and monitoring activities and/or costs that have been identified for the entire watershed.

PROPOSED PRACTICES AND ASSUMPTIONS	IMPLEMENTATION COSTS	TOTAL COSTS PER PRACTICE
Water Development: Includes tanks, troughs, pipelines and springs on about 100,000 acres to improve existing facilities.	\$25/acre X 100,000 acres	\$ 2,500,000
Water Wells: For low-lying areas without adequate water.	50 @ \$5,000	\$ 250,000
Stockponds: For upland areas without adequately piped water	100 @ \$5,000	\$ 500,000
Fencing: Includes extensive cross fencing parallel to major drainages. Five strand barbed wire with 10 foot tee post spacing	250 miles @ \$11,000/mile	\$ 2,750,000
Burn Management: For prescribed burning in selected areas.	\$60/acre X 25,000 acres	\$ 1,500,000
Reseeding: For streambanks, in star thistle infestation areas, and selected prescribe burn areas.		\$ 100,000
Riparian Enhancement: For cottonwood plantings.	50,000 cuttings @ \$5.00	\$ 250,000
Tamarisk Reduction: For hand, mechanical, and herbicide uses.		\$ 250,000
Yellow Star Thistle Reduction: For herbicide and mechanical control.	1,000 acres @ \$30.00/acre	\$30,000
Streambank Stabilization: Includes berms, matting, and revegetation.	60,000 feet @ \$30.00/foot	\$ 1,800,000
Access Roads: For culverts, erosion control best management practices, and "Arizona" crossings.		\$ 200,000
Ranch and Farm Plans: Plus technical assistance, meetings.	10 years @ \$90,000/year	\$ 900,000
Monitoring	10 years @ \$25,000	\$ 250,000
TOTALS	\$42 per acre over 270,000 acres	\$ 11,280,000

The process for obtaining a farm or ranch plan and implementing recommendations is very basic: Landowners in the watershed submit an application to the CRMP to have a plan designed. Incorporated in the process is an agreement from the landowner to provide 30% of the cost of implementing the project, either through paying for materials and services or for

providing in-kind services (equipment, labor, etc.). In addition, the landowner signs an agreement with the Westside Resource Conservation District, titled "Arroyo Pasajero Watershed Cooperative Monitoring Agreement", whereby the landowner promises, in exchange for funds for watershed improvements in accord with his or her individual Ranch or Farm Plan, to conduct project-specific monitoring activities specified in the Agreement, to secure any required permits as per local, state, or federal regulations, to provide the District with all invoices and billings necessary to document the work accomplished and collect payment, and after practices installation, to conduct yearly follow-up through July 31, 2002. This Agreement is entered into by the WRCD, the Stewards of the Arroyo Pasajero CRMP, and the landowner. The ranch and farm plans are developed by Sage and Associates or by the Natural Resources Conservation Service Fresno Field Office, depending upon availability, expertise and landowner's choice. Regardless of who generates them, all implementation infrastructure construction is according to NRCS specifications and is administered through the RCD. Additionally, plans that are subject to NEPA/CEQA permitting shall not commence until documents that satisfy the appropriate permitting process are obtained.

Once the individual Plans are developed, landowners can request funding for implementation of projects within the Plan through the CRMP. Proposals are based only on the best management practices recommended in the Plans. Projects include, but are not limited to, such activities as are listed above in the Practice/Cost summary. The requests include photos of pre-project conditions and descriptions of the cost and activity involved in completing the project. Landowners will oversee projects and provide project-appropriate monitoring. The projects are then approved for funding by the CRMP, given availability of funds. If projects need additional approval from a Contract Manager (i.e. 319(h) grant), the projects are ranked by NRCS officers in the Madera Field Office and are submitted to the Contract Manager in order of ranking.

The CRMP plans to have ranch and farm plans developed for the entire watershed by 2008, and implementation of plans over the next ten to twenty years. To date, over one-third of the watershed property is under active management plans. Additional funds are needed to develop more farm and ranch plans and to implement them. Should CALFED funding be made available through this proposal process, Westside RCD and the Arroyo Pasajero CRMP agree to comply with the standard Terms and Conditions for CALFED Funding Agreements as listed in Section 8 of the original Proposal Solicitation Package, which address the Purpose of the Project, Monitoring, Project Presentations, Payment Schedule, Rights in Data, Acknowledgement of Credit, Indemnification, Dispute Resolution and Project Tracking.

2. Describe your qualifications and readiness to implement the proposed project.
 - a. Describe the level of institutional structure, ability and experience to administer funds and conduct the project. Identify the fiscal agent responsible for handling the funds.

The applicant, Westside Resource Conservation District, is a non-profit organization under Division 9 of the Public Resources Code. Mr. Morris A. Martin, manager of Westside RCD, is the project manager for this application. Mr. Martin spent 32 years working for the Soil Conservation Service (NRCS) in the San Joaquin Valley. Following his retirement from the Soil Conservation Service, Mr. Martin became the manager of Westside RCD. He has held this position for nine years and has administered over 15 state and federal grants. Mr. Martin is certified by the Soil and Water Conservation Society and International Erosion Control Association as a Professional in Erosion and Sediment Control.

Linda Ballentine, Fiscal Manager, holds a Bachelor's degree in Conservation and Resource Studies from the University of California at Berkeley, and a Masters in Agri-Business with an emphasis in Finance from California State University, Fresno. She has over 15 years of experience in agricultural lending and financial management, and is also certified in Grant Management and Administration. Ms. Ballentine not only assists Mr. Morris with the financial aspects of Westside RCD, but she is also the Watershed Coordinator for The Stewards of the Arroyo Pasajero CRMP, where she manages previously awarded grant funds and provides reporting.

- b. Describe technical support available (including support needed for environmental compliance and permitting) to begin and complete the project in a timely manner.

Technical support for this project is provided by Dr. Orrin Sage of Sage Associates Environmental Consultants and by the USDA Natural Resources Conservation Service Fresno Field Office. Both companies have been actively involved in preparing farm and ranch plans since 1998. In addition, Dr. Orrin Sage has prepared the Regional Watershed Management Plan for the Arroyo Pasajero, and assists with the monitoring of results of the implementation of the Plans. He is a State of California Board of Forestry Certified Rangeland Manager and an American Society of Agronomy Certified Soil Erosion and Sediment Control Specialist. Dr. Sage has a Ph.D. in Geology from the University of California and over 25 years experience working with public agencies, private landowners, ranchers and conservation organizations in the preparation of environmental studies, agricultural suitability assessments, grazing plans, development of Best Management Practices, and erosion control/restoration plans.

Dave Durham from the USDA-NRCS Fresno Field Office and John Shelton and Paul Romero from the San Joaquin District Office of the California Department of Water Resources have been instrumental in developing the Watershed's existing Monitoring Plan and Monitoring Agreement as well as a Quality Assurance Project Plan. all of which were commissioned through the CRMP's 319(h) grant. The monitoring activities in these Plans are designed to be performed in a manner compatible and complimentary to the

DWR monitoring program. It is anticipated that most of the monitoring activities will be performed by the landowners, with local, state, and federal agencies providing technical assistance when needed. The DWR also performs monitoring for their internal ongoing work on the Arroyo Pasajero program.

- c. List any previous projects of this type you or your partners have implemented, funded either by CALFED or other programs. (2 pages)

Currently, one farm plan and twelve ranch plans have been developed through the Stewards of the Arroyo Pasajero Watershed CRMP's restoration program, and applications for four additional Ranch Plans have been received. Funding for the development of Ranch and Farm Plans is from a \$300,000 grant from the State Water Contractors, at \$100,000 per year. This funding will be completed in June, 2001.

To date, over \$150,000 of the \$300,000 committed funding from existing grants has been spent for projects recommended in Ranch and Farm Plans. Sources of funding for project implementation are landowners, at a 30% minimum, USDA-NRCS, who initially provided seed money to begin the project, Packard Foundation, Regional Water Quality Control Board 319(h) Grant, Westside Cattlemen's Association, and National Fish and Wildlife Foundation. There is a need for approximately \$ 1,389,000 just to implement projects prescribed in existing plans. The chart in Section 8 gives a breakdown of the acreage involved with each plan, the nature of the implementation suggested, and the cost and funding breakdown. If awarded funding through the CALFED Bay-Delta Watershed Program, projects are already planned that funds can be allocated to, for both planning and implementation activities, and applied in a timely manner.

3. Provide a completed budget cost sheet and describe the basis for determining project costs, including comparisons with other similar projects, salary comparisons, and other listed costs. Include all costs of environmental compliance, such as CEQA and/or NEPA, and permits. Describe how the approach to achieving the stated goals of the project demonstrates an effective cost relative to its anticipated benefits.
(2 page narrative; two sections in back)

As outlined above, total funding for implementation of individual ranch and farm plans within the Arroyo Pasajero Watershed Management Plan is estimated to be \$11,280,000 over a 10-year period. This averages approximately \$42.00 per acre averaged over the 270,000 acres of rangeland and selected stream bank stabilization areas or about \$33.00 per acre averaged over the entire watershed area. Project costs are based on actual estimates for time, labor rates, machine hours and costs, and cost of materials for this area. Landowners are responsible for providing 30% of the implementation costs of their projects, and are responsible for the ongoing maintenance.

This is a very cost-effective approach, considering that costs to repair damages to the California Aqueduct over ten years is \$428,000,000, which results in annual average damage costs of \$42,800,000 (\$158.50 per acre over 270,000 acres). Also, the cost of building the proposed Gap Dam was estimated at \$238,000,000 in initial costs (\$881.48 per acre over 270,000 acres) plus \$20,500,000 per year (\$75.93 per acre over 270,000). Lastly, the sediment retention costs, alone, average about \$4,000 per foot. Storm activity in March, 2001, which was identified as about a five-year event storm, deposited about five feet of sediment in the lower watershed area. Therefore, significant funds are applied every year for sediment retention. Again, under the Watershed Management Plan, the funding necessary is only \$42.00 per acre over ten years to develop plans and implement them. The ongoing monitoring and maintenance is done voluntarily by the landowners.

Since the formation of the Arroyo Pasajero CRMP in 1997, about 120,000 of the 339,000 acres of the watershed are under active management plans (Ranch and Farm Plan project implementation) with a budget of about \$860,000 from various state agencies and private foundations. To date, actual costs have been found to be consistent with those in the Project/Cost Summary - there are no unexpected cost overruns.

During this time, individual plans have been developed that prescribe

- 53 miles of pipe
- 66 tanks
- 119 troughs
- 7 springs
- 11 wells/pumps
- over 20 stockponds
- 62 miles fence
- over 760 cottonwoods and 300 willows
- one mile of drip irrigation
- over 1,200 feet revetment fencing

Additional funding is needed to continue this Program of planning and implementation. Currently, an additional \$1.4 million is needed to implement those individual Ranch and Farm Plan projects for which specific documents and monitoring plans have already been completed. This request of \$200,000 from CALFED will be used to:

- Prepare additional Ranch and Farm Plans
- Implement the improvements prescribed in the Farm and Ranch Plans
- Monitor the results of the implementation
- Support information and outreach efforts, such as educational and training workshops and educational materials
- Reporting

This will provide enough funding to help the program progress at a comfortable pace. Much of the infrastructure is already developed. The program is now at a stage where activities can be conducted with protocols and procedures in place.

4. Describe the technical feasibility of the proposed project.
 - a. Describe any similarity to previously implemented successful projects in this community or elsewhere.

The first ranch plan was completed in fall of 1998, and projects began to be implemented in 2000. To date, twelve Ranch Plans and one Farm Plan have been completed and are in various phases of implementation. Due to the short time the program has been in place, it is too early to note any significant changes in the flood runoff and sedimentation levels of the watershed. There are, however, reports of improved grazing conditions in the upper watershed due to fencing activities and the development of stockponds. Over sufficient time, watershed management practices will improve via the CRMP program and produce measurable improvements in water quality. The program goals to be achieved include increased infiltration of runoff and reduced water volume, decreased siltation, rehabilitation of stream channels and banks, reduced bank erosion, enhanced riparian ecosystems, and reduced threat to the California Aqueduct which is now threatened in major storm events by rapid storm runoff, pollution from asbestos and other water quality contaminants, and heavy siltation.

This program has potential application by other RCDs for major regional landowner-driven watershed and water quality enhancements that exceed best management practices in the non point source management measures. The Cachuma RCD is now forming a CRMP for the San Antonio Watershed in Santa Barbara County patterned after the successful program of the Arroyo Pasajero CRMP.

- b. If the project proposes a new approach or new method with a high likelihood of adding new knowledge and or techniques, or with the potential to fill identified gaps in existing knowledge, describe how it will do so, and what monitoring components will provide substantiation of results.

Previous studies have assessed “high-infrastructure” solutions to the erosion and sedimentation, such as dams, large retention basins, and major stream channel stabilization structures. This program involves implementing “low-infrastructure” solutions to the Watershed’s erosion and sedimentation problems in order to continue the traditional land use and enhance the current economic base of the area. Through this program, incremental improvements can be achieved throughout the watershed by the systematic implementation of changes in agricultural management practices. Improvements can be documented through citizen and DWR monitoring activities that record what activities have taken place in the watershed along with water quality and flooding conditions. Incremental reduction in surface runoff by increasing surface infiltration can lead to improved rangeland residual dry matter, improved riparian corridor functionality, reduced erosion, reduced sedimentation and reduced flooding on a watershed-wide basis.

- c. Explain how the finished project will be maintained as necessary, and to what degree it may require continued funding from outside the community.
(2 pages)

Landowners are committed to the ongoing maintenance and monitoring of their projects. Due to the fact that the projects implement best management practices, it is in the landowners' best interest to maintain the project on a long term basis to maximize productivity. This may be in the form of maintaining streambank stabilization projects to prevent erosion of crop land into the streams, or it may in the form of maintaining fences to enforce grazing rotation so as not to overgraze pastures.

In most cases, once the project is implemented there is no need for additional funds, although ranch plans are living documents, whereby somewhere down the line such activities as brush removal may be necessary. At that point, the landowner can request funding through the CRMP to initiate additional projects as necessary. On a watershed-wide basis, funding for the development of additional Farm and Ranch Plans and project implementation will continue to be solicited until each landowner has an opportunity to have a ranch plan developed and can implement the prescribed activities.

5. Describe how the monitoring component of the project will help determine the effectiveness of project implementation and assist the project proponent and CALFED with adaptive management processes.

a. Identify performance measures appropriate for the stated goals and objectives of the project.

The overall goal of the Arroyo Pasajero Coordinated Resource and Management Planning (CRMP) group is to implement a watershed management plan to achieve best management practices throughout the Arroyo Pasajero watershed. The long-term goals of these best management practices include reducing erosion, improving water quality, enhancing riparian habitat, and improving range conditions for livestock production. The success of the individual ranch and farm plan projects will be measured by the long-term impacts that they have on reducing the amount of runoff and sediment that are transported from the watershed to the California Aqueduct, and improving native vegetation. Guidelines in considering the success of these projects will include:

- Decreased runoff from the project area
- Decreased suspended sediment in the watershed
- Improved surface water quality in the watershed
- Decreased streambank erosion in the watershed
- Improved forage production

In general, a quantitative evaluation may not be possible for many years after the initial implementation of the watershed management plan. Limitations in the availability of baseline data, sampling methodologies, size of existing projects' areas and the frequency of measurable floods may prevent the identification of noticeable trends in reducing runoff and improving water quality. A secondary set of short-term guidelines to evaluate the success of the watershed management plan for the short-term are as follows:

- Develop landowner awareness and participation
- Increase the number of projects implemented in the watershed
- Increase residual dry matter in the project areas
- Increase native tree, shrub, and grass cover in the project areas

These short-term goals will provide a good indication of the expected long-term improvements to the surface water quality and erosion in the watershed.

b. Describe how this project will coordinate with and support other local and regional monitoring efforts.

It is anticipated that most of the monitoring activities will be performed by the landowners, with local, state, and federal agencies providing technical assistance when needed. The Department of Water Resources (DWR) will also perform monitoring for their ongoing work on the Arroyo Pasajero program. To the extent possible, the work described in this plan will be performed so as to be compatible and complimentary to the DWR monitoring program. The protocol and standards used for monitoring are compatible with those of many agencies, therefore the data collected can be applied as well. As more emphasis is placed on monitoring activities, more data will be generated, and some of the information gaps throughout the watershed may be filled.

- c. Provide a description of any citizen monitoring programs that will be part of this project.

Citizen monitoring of projects is mandatory under the “Arroyo Pasajero Watershed Cooperative Monitoring Agreement” that the landowner enters into with the Westside RCD and the Stewards of the Arroyo Pasajero CRMP. The CRMP has its own Monitoring Plan as well as a Quality Assurance Plan that outline processes and parameters for monitoring. The types of monitoring that are addressed include:

- original baseline, and subsequent annual photo monitoring,
- watershed assessment observations in the field,
- residual dry matter mapping (either visual or clipping method),
- hydrologic monitoring for rainfall, streamflow (area velocity monitoring),
- water quality sampling (TDS/EC),
- channel vegetation cross-sections (vegetation counts),
- infrastructure monitoring (evaluation of field plantings, annual operation and maintenance inspections),
- suspended sediment sampling (DH-48 hand-held sediment sampler and Imhoff cone sampling), and
- erosion and deposition monitoring with channel cross-sections.

Monitoring requirements are determined on a project-specific basis, since not every Ranch or Farm Plan requires every monitoring tool that is part of the overall Monitoring Plan for the Regional project. Monitoring activities that require professional expertise are conducted by Sage and Associates and by DWR.

- d. What monitoring protocols will be used, and are they widely accepted as standard protocols?

The monitoring protocols used for training, sampling and data collection are widely accepted among the agencies that are historical or potential sources of funding. To meet the Data Quality Objectives for the CRMP monitoring projects, the following training and sampling protocol will be used.

Training and Quality Control Workshops

All landowners that will be obtaining funding, must participate in a training workshop conducted by the California Department of Water Resources, Natural Resources Conservation Service, State Water Resources Control Board (SWRCB), Central Valley Regional Water Quality Control Board (RWQCB), and/or UC Cooperative Extension. The training will cover sampling procedures, safety, instrumentation, and data recording. The training will include quality assurance and quality control sessions to provide an opportunity for landowners to check the accuracy and precision of their equipment and their own testing techniques. All equipment used in the monitoring will be brought to the session.

The monitor will conduct duplicate tests on all analyses and meet the data quality objectives described above. If a monitor does not meet the objectives, the trainer will re-train and re-test the monitor, or the monitor will be rescheduled for an additional training

session. The monitor will be encouraged to discontinue monitoring for the analysis of concern until training is completed.

The quality control trainer will examine whether the equipment is in good repair, check data quality by testing equipment against blind standards, and ensure that monitors are reading instruments and recording results correctly. Sampling and safety techniques will also be evaluated. The trainer will discuss corrective action with the volunteers, and the date by which the action will be taken

Sampling Method Requirements

The monitoring plan describes the appropriate measuring and sampling procedures to be used in the monitoring program. Training workshops and technical assistance by DWR, NRCS, RWQCB, SWRCB, and/or UC Cooperative Extension will further provide information on correct monitoring procedures.

The following table describes the sampling equipment, sample-holding container, sample preservation method and maximum holding time for conductivity, settleable solids, and suspended sediments.

Data Quality Objectives for Water Quality Parameters

Parameter	Method	Units	Detection Limit	Precision	Accuracy
Precipitation	Plastic Raingage	Inch	0.10	± 0.10"	± 0.10"
Precipitation	Automated Raingage	Inch	0.01	NA	± 0.10"
Streamflow	Area-Velocity Equation	Cfs	10	± 20%	± 25%
Conductivity/ Salinity	Conductivity Meter	µmhos/cm	10	± 10%	± 10%
Settleable Solids	Imhoff Cone	ml/L	1.0	± 20%	± 30%

- e. Describe how the type and manner of data collection and analysis will be useful for informing local decision making? (3 pages)

Data collection activities, including the number and accuracy of sampling, will have a great impact on developing watershed trends as a result of implemented projects. However, the effectiveness of data collection will also be influenced by hydrologic cycles in the watershed. Variations in runoff amount, surface water quality, and erosion can be a result of the time of year that samples are taken, moisture conditions in the watershed, whether initial flows or latter flows in the watershed are sampled, and the timing of samples during each storm. Furthermore, the condition of rangeland and riparian vegetation can be influenced by the land slope, soil type, and land use. These factors must all be accounted for when selecting sampling locations and times, and when evaluating the results of sampling.

6. If this project is to develop specific watershed conservation, maintenance or restoration actions, describe the scientific basis for the action(s) described in the proposal. Include the following:
- a. Any assessment of watershed condition(s) that has already been developed by you or others.

Over 20 studies of the Arroyo Pasajero Watershed have been conducted by public agencies and private consultants to identify watershed characteristics and issues. Many of the studies focused on the effects of erosion, sedimentation, and flooding on the California Aqueduct. The Arroyo Pasajero Watershed Management Plan incorporates information from many of the previous studies and builds upon them to provide a current, comprehensive Plan that addresses the causes of the erosion, sedimentation and flooding. This Plan is then used to provide a consistent framework to begin on-the-ground identification and implementation of individual ranch and farm watershed management plans that focus on flood and erosion prevention.

- b. Previous assessment(s) used to establish your project goals and objectives, or to inform the basic assumptions of your proposal.

The Arroyo Pasajero Watershed problem analysis is based on the compilation and review of previous Arroyo Pasajero Watershed studies, discussions with CRMP members, a review of 1998, 1995, 1974, and 1940 historical and aerial photographs, review of technical data and unpublished soils information, reconnaissance-level field assessments, and site specific field studies of pilot project areas. Physical characteristics, biological processes and traditional land use practices have been assessed in order to determine how the interplay of these factors influence surface runoff / flooding, erosion, and sedimentation in the watershed. No single factor is responsible for, or by itself, capable of ameliorating the sedimentation problems in the lower Arroyo Pasajero watershed. A complex interaction among these factors is evident. Only some factors can be mediated by human intervention – agricultural, mining, road and stream crossing maintenance, natural resource management - are examples, in contrast to soils, terrain and climatic variability. It is apparent that there are just a few choices available to shift this complex interaction toward better long-term land conservation and resource management, improved economic viability of agriculture, and protection of down-stream resources and facilities such as I-5, the Cities of Coalinga and Huron, and the California Aqueduct.

- c. A description of the scientific assumptions used to develop the project goals, objectives and proposed actions, and the degree to which those assumptions are widely accepted (both in the science community as a whole, and in the watershed community).

The watershed analysis identified the following special interest factors that can influence and effect surface runoff/flooding, and erosion/sedimentation in the watershed

<u>Factor</u>	<u>Problem Analysis</u>	<u>Which Can Influence</u>	<u>Which Can Effect</u>
Climate	Temperature variability, and rainfall variability	Livestock distribution, forage availability, and residual dry matter	Rain infiltration, surface runoff, flooding, erosion and sedimentation.
Geology	Less resistant sedimentary formations are common, poorly consolidated alluvium , unstable channel banks, and earthquakes	Mass wasting of surficial earthen material, and stream bank stabilization.	Erosion and Sedimentation
Topography	Steep upland slopes and flat lying valleys, subsidence	Natural vegetation, and livestock distribution, channel down cutting.	Surface runoff / flooding, erosion and sedimentation.
Hydrology/ Drainage	Limited upland water, cut stream banks, steeper upland gradients, and flatter lowland gradients.	Livestock distribution, and land protection	Surface runoff / flooding, erosion and sedimentation.
Soils	Low water holding capacity and high erosion hazard.	Natural vegetation, livestock distribution, and stream bank stabilization.	Surface runoff / flooding, erosion and sedimentation.
Vegetation	Variable across watershed, some noxious plants, annual grassland, chaparral, and riparian vegetation.	Livestock distribution and forage utilization, and stream flow.	Surface runoff / flooding, erosion and sedimentation.
Fire	Infrequent natural burning, and limited prescribed burning.	Livestock distribution and forage utilization, and stream flow.	Surface runoff / flooding, erosion and sedimentation.
Traditional Land Uses	Limited water and fencing infrastructure, salt locations, farming and irrigation practices, farmland drainage, and California Aqueduct location. Infrastructure and maintenance costs.	Livestock distribution and forage utilization, stream flow, stream bank protection, agricultural viability and California Aqueduct longevity.	Surface runoff / flooding, erosion and sedimentation.

- d. A discussion of how the proposed actions are (are not) consistent with the scientific assumptions and previous assessments completed in the watershed.

The proposed actions of the Arroyo Pasajero CRMP incorporate information from previous studies with a practical, relatively inexpensive solution. The actions take into consideration what variables can be affected (vegetation, land use, and fire) and how they can compensate for those that cannot (climate, geology, topography, hydrology, and soils). By implementing best management practices primarily with regards to traditional land uses, the instances of flooding and erosion can be affected in a positive way.

- e. A description of what baseline knowledge was used to support the management actions described in the proposal, or the likelihood that the management actions will generate more robust baseline knowledge. (2 pages)

Baseline knowledge from previous studies was evaluated during the development of the Arroyo Pasajero Watershed Management Plan. It is hoped that the CRMP can serve as a centralized source of information as to what activity is happening in the watershed and by whom. This, in turn, will result in a generation of more robust baseline knowledge.

- 7. A. How will the proposal address multiple CALFED objectives (see Section I) in an integrated fashion, with emphasis on water supply reliability, water quality, ecosystem quality, and levee stability objectives CALFED has established for Stage 1 of the program?

The CRMP's program is scheduled to be fully implemented in ten to 20 years over the entire 500-square mile watershed area above the California Aqueduct. There will be ongoing coordination of planning, implementation and monitoring activities for this time period, and monitoring will document water quality, and erosion and sedimentation improvements for sustaining water quality benefits during this time. This better ensures that the California Aqueduct will experience reduced damage from flood events as uncontrolled runoff during flood events will be slowed, channel and retention basin siltation reduced, and streambank erosion reduced by increased infiltration in the upper watershed. This will also provide protection for downstream property owners and the cities of Coalinga and Huron, in conjunction with other flood control measures in place. This will better ensure uninterrupted and uncompromised delivery of water to millions of consumers and industry in Southern California via the Aqueduct.

The nature of the projects implemented enhance and improve the ecosystem quality by restoring and improving many of the riparian habitats, and by removing noxious plants, such as yellow star thistle, medusa head, and tamarisk, which divert water from desirable plants and hinder feed sources for livestock and wildlife. In addition, they contribute to ground fuel buildup, which, should a wildfire start up, would destroy wildlife habitats. By improving the streambank channels, repairing riparian habitats, implementing best management practices, and other activities, the landowners are, at the same time improving the quality of the ecosystems.

- B. Explain how the proposal will help define and illustrate relationships between watershed processes (including human elements), watershed management, and the primary goals and objectives of the CALFED (see Section I).

By implementing the projects in this proposal, the landowners of the Arroyo Pasajero Watershed will be upholding and carrying out the processes described in the Watershed Management Plan. To the landowner, it's a matter of improving the viability and profitability of their farm or rangeland. To the watershed, it's a matter of increasing infiltration, and reducing streambank erosion and damaging flood events. To CALFED, the Cities of Coalinga and Huron, it's a matter of ensuring the quality and delivery of

water and minimizing damage costs to the Aqueduct and water treatment plants. All benefit from the primary activities carried out by the landowners in the watershed.

The plans, projects, and monitoring carried out through this program are done in conjunction with USDA-NRCS, DWR, Regional Water Quality Control Board, Westside RCD, City of Huron, City of Coalinga, State Water Contractors, Kern County Water Agency, Westlands Water District, Bureau of Reclamation, Bureau of Land Management, Westside Cattlemans, Department of Conservation, and other groups and organizations. Whether the contribution is technical assistance, funding or services, everyone has served a need. They incorporate in-kind services from landowners, students, and even prison crews from Pleasant Valley Correctional Facility. This is a prime scenario of how, when people have a common interest, they can work together to achieve their goals.

The Watershed monitoring and assessment protocols are based on agency standards, primarily NRCS and DWR. They are considered to be highly compatible with the overall CALFED science and monitoring program.

The Watershed Management Plan supports education and outreach to landowners, in the case of offering this program to all landowners in the watershed, to the communities of the Coalinga and Huron, and to other watershed groups who want to implement similar programs. In addition, it provides training to landowners to ensure that their voluntary monitoring is done consistently throughout the watershed so that it can be deemed as useable information. Tours of the projects implemented are always available. The landowners are very grateful for the opportunity to participate in this program, therefore they are very eager to promote it.

This project, as it is implemented, will help to preserve the integrity of other CALFED and similar projects, that are planned and implemented in the Bay-Delta region, that strive to improve and maintain the water quality of the Delta and Aqueduct. From a geographical perspective, this is one of the last measures that upholds the delivery and quality of the water before it reaches Southern California. The Bay-Delta delivery system is very costly to maintain and operate. Millions of dollars are wasted on improving and maintaining the water quality of this system when flood events in the Arroyo Pasajero contaminate the water with silt and suspended sediments. Therefore, this program complements, and is as important as, projects around the Bay-Delta and along the Aqueduct in ensuring the uninterrupted and uncompromised delivery of water.

The approach for this program is to take the existing factors affecting the watershed, and instead of building a dam or imposing other unnatural structures in the watershed, enhancing the current land uses to improve the conditions. Through these efforts, habitats will be improved, farming and ranching will be more viable and profitable, and water quality and flooding incidents will improve. This is a win:win program for the landowners, for the watershed, and for CALFED. The Arroyo Pasajero Watershed Management program is a viable, long term program whereby landowners commit to voluntary monitoring and maintenance of their property on a long-term basis.

- C. Identify a lead agency for environmental compliance, such as CEQA or NEPA. Describe the program's strategy and timetable on environmental compliance. (2 pages)

Determination as to the necessity of permits is done on a project by project basis. NEPA compliance is assured by conformance with applicable NRCS EA (environmental assessment worksheet) requirements prepared by NRCS for each and every project. This process follows the procedures established by NRCS for all EQIP and WHIP funding in the State of California. Streambed alteration permits (CEQA compliance) are handled under 1603 permits issued by California Department of Fish and Game.

- 8 Describe any other important aspects of your program that you could not address in the above items, and that you feel are critical to fully describing your project. (2 pages)

Projects under implementation include:

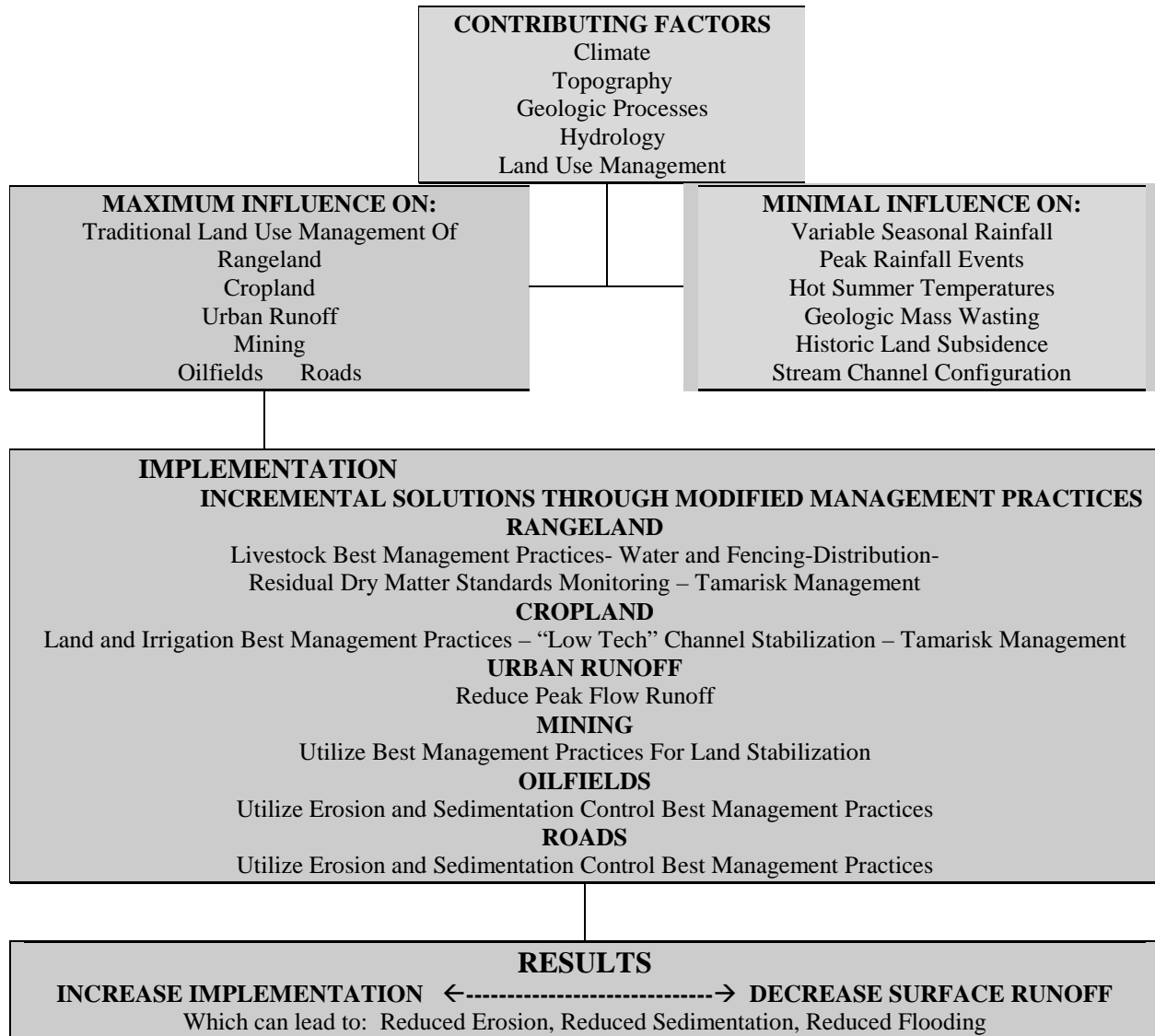
Name / Plan / Date Completed	Total Acres	Type of Practices	Funding Required For Full Plan Implementation	Funds Spent To Date	Allocated Amount / Source
Howell Ranch Plan Oct. 1998	6,000	Water, Fencing, Road Repair, Riparian/Wildlife Enhancement, Streambank Stabilization	\$ 175,121	\$ 7,470.00	\$ 20,935 USDA-NRCS Packard, NFWF W. Cattlelands
Viets/Allen Farm Plan Oct. 1999	640	Water, Fencing, Riparian/Wildlife Enhancement, Streambank Stabilization	\$ 41,050	\$ 4,173.76	\$ 4,173.76 USDA-NRCS
Birdwell Ranch Plan Nov. 1999	40,000	Water, Fencing, Road Repair, Riparian/Wildlife Enhancement, Streambank Stabilization	\$ 391,200	\$ 80,187.20	\$ 95,157 USDA-NRCS Packard 319(h) W.Cattlelands
G. Varian Ranch Plan Mar. 2000	3,600	Water, Fencing, Road Repair, Riparian/Wildlife Enhancement, Streambank Stabilization	\$ 128,850	In Process	\$ 18,300 319(h)
Wood-Whitehouse Ranch Plan Apr. 2000	10,000	Water, Fencing, Riparian/Wildlife Enhancement,	\$ 96,867.80	\$ 27,299.16	\$ 60,175 Packard 319(h)
Varian V6 Ranch Plan May 2000	6,800	Water, Fencing, Road Repair, Riparian/Wildlife Enhancement, Streambank Stabilization	\$ 184,150	\$ 23,942.10	\$ 39,335 Packard 319(h)
Turk Station Ranch Plan June 2000	1,240	Water, Fencing, Riparian/Wildlife Enhancement, Streambank Stabilization	\$40,780	\$ 15,056.81	\$ 24,415 319(h)
Green Ranch Plan Sept. 2000	800	Water, Fencing, Road Repair, Riparian/Wildlife Enhancement, Streambank	\$52,813	In process	\$ 3,815.40 319(h)

		Stabilization			
Bill Clay Ranch Plan Oct. 2000	626	Water, Fencing, Riparian/Wildlife Enhancement, Streambank Stabilization	\$ 23,450	In process	\$ 14,070 319(h)
Mouren-Jacalitos Ranch Plan Oct. 2000	27,800	Water, Fencing, Road Repair, Riparian/Wildlife Enhancement, Streambank Stabilization	\$ 185,650.50		
Gragnani Ranch Plan Dec. 2000	6,208	Water, Fencing, Riparian/Wildlife Enhancement, Streambank Stabilization	\$ 113,350	In process	\$ 15,210 319(h)
Kester-Jacalitos Ranch Plan Dec. 2000	9,000	Water, Fencing, Road Repair, Riparian/Wildlife Enhancement, Streambank Stabilization	\$ 108,768		
Brown Ranch Plan Apr. 2001	2,570	Water, Fencing, Riparian/Wildlife Enhancement	\$ 141,696		
TOTAL	115,284		\$ 1,683,746.30	\$ 158,129.03	\$ 295,586.16

This chart corresponds with the ranches identified on the Watershed map, which is provided as an attachment in this application.

ARROYO PASAJERO WATERSHED PROBLEM ANALYSIS

WATERSHED DYNAMICS SUMMARY



CALFED Watershed Program Budget Summary I

Task Description	Labor Rate*	Hours	Total Labor	Supplies	Materials	Subcontract**	Match	CALFED	Total
Task 1: Administration						\$ 10,000.00	\$ 3,000.00	\$ 7,000.00	\$ 10,000.00
Task 2: Farm and Ranch Plan Development						\$ 31,000.00	\$ -	\$ 31,000.00	\$ 31,000.00
Task 3: Project Implementation	30***	3,431.67	\$ 102,950.00		\$ 85,050.00	\$ -	\$ 63,400.00	\$ 124,600.00	\$ 188,000.00
Task 4: Monitoring			\$ 7,000.00		\$ 5,000.00	\$ 14,000.00	\$ 7,000.00	\$ 19,000.00	\$ 26,000.00
Task 5: Reporting and presentations			\$ -	\$ 100.00		\$ 4,900.00	\$ 5,000.00	\$ -	\$ 5,000.00
Totals:			\$ 109,950.00	\$ 100.00	\$ 90,050.00	\$ 59,900.00	\$ 78,400.00	\$ 181,600.00	\$ 260,000.00

*Provide a benefits/salary percentage here

**Provide a separate itemized budget using this format for subcontracts

*** Labor Rate is a weighted average of rates for various implementation activities.

CALFED Watershed Program Budget Summary I
Westside Resource Conservation District

Task Description	Labor Rate*	Hours	Total Labor	Supplies	Materials	Subcontract**	Match	CALFED	Total
Task 1: Administration	\$ 50.00	140	\$ 7,000.00					\$ 7,000.00	\$ 7,000.00
Task 2: Farm and Ranch Plan Development									\$ -
Task 3: Project Implementation									\$ -
Task 4: Monitoring									\$ -
Task 5: Reporting and presentations									\$ -
Totals:			\$ 7,000.00	\$ -	\$ -	\$ -	\$ -	\$ 7,000.00	\$ 7,000.00

*Provide a benefits/salary percentage here

**Provide a separate itemized budget using this format for subcontracts

CALFED Watershed Program Budget Summary I
Linda Ballentine - Watershed Coordinator

Task Description	Labor Rate*	Hours	Total Labor	Supplies	Materials	Subcontract**	Match	CALFED	Total
Task 1: Administration	\$ 50.00	60	\$ 3,000.00		\$ 500.00		\$ 3,000.00	\$ 500.00	\$ 3,500.00
Task 2: Farm and Ranch Plan Development									\$ -
Task 3: Project Implementation									\$ -
Task 4: Monitoring									\$ -
Task 5: Reporting and presentations	\$ 50.00	10	\$ 500.00				\$ 500.00		\$ 500.00
Totals:			\$ 3,500.00	\$ -	\$ 500.00	\$ -	\$ 3,500.00	\$ 500.00	\$ 4,000.00

*Provide a benefits/salary percentage here

**Provide a separate itemized budget using this format for subcontracts

CALFED Watershed Program Budget Summary I
Subcontract - Sage & Associates

Task Description	Labor Rate*	Hours	Total Labor	Supplies	Materials	Subcontract**	Match	CALFED	Total
Task 1: Administration									\$ -
Task 2: Farm and Ranch Plan Development	\$ 116.00	260.00	\$ 30,160.00		\$ 840.00		\$ -	\$ 31,000.00	\$ 31,000.00
Task 3: Project Implementation									\$ -
Task 4: Monitoring	\$ 116.00	120.00	\$ 13,920.00		\$ 80.00		\$ -	\$ 14,000.00	\$ 14,000.00
Task 5: Reporting and presentations									\$ -
Totals:			\$ 44,080.00	\$ -	\$ 920.00	\$ -	\$ -	\$ 45,000.00	\$ 45,000.00

*Provide a benefits/salary percentage here

**Provide a separate itemized budget using this format for subcontracts

CALFED WATERSHED PROGRAM BUDGET AND PROJECT SUMMARY II

Task Description		Completion date	Match funds	CALFED funds	Total
Task 1:	Administration:	Month 24	\$ 3,000	\$ 7,000	\$ 10,000
<i>Task 1a: Education and Outreach Activities - includes Monitoring Workshops for landowners as well as Informational Workshops/Activities for the community</i>			\$ 500		\$ 500
<i>Task 1b: Educational/Informational materials</i>			\$ 1,000	\$ 1,000	\$ 2,000
<i>Task 1c: Grant Administration</i>			\$ 1,500	\$ 6,000	\$ 7,500
Task Product(s): Workshop Syllabus; Informational/Educational Materials					
Success Criteria: Workshop Attendance; increase in CRMP Meeting Attendance; Number of new requests for Ranch Plans; Increase in monitoring activities.					
Task 2:	Ranch and Farm Plan Development	Month 12	\$ -	\$ 31,000	\$ 31,000
<i>Task 2a: Develop Ranch and Farm plans as requested by landowners.</i>					
Task Product(s): Individual Ranch and Farm Plans					
Success Criteria: Completion of additional Ranch and Farm Plans within the Watershed.					

CALFED WATERSHED PROGRAM BUDGET AND PROJECT SUMMARY II

Task Description		Completion date	Match funds	CALFED funds	Total
Task 3:	Project Implementation	Month 24	\$ 63,400	\$ 124,600	\$ 188,000
	<i>Task 3a: Water Practices - pipelines, tanks, troughs, springs, pumps, stockponds</i>		\$ 15,600	\$ 36,400	\$ 52,000
	<i>Task 3b: Fencing Practices</i>		\$ 18,900	\$ 44,100	\$ 63,000
	<i>Task 3c: Riparian/Wildlife Enhancement Practices - planting cottonwoods and willows, fencing, caging, instal drip irrigation</i>		\$ 5,100	\$ 11,900	\$ 17,000
	<i>Task 3d: Brush/Noxious weed removal - Removal of Tamarisk, Medusa Head, Thistle</i>		\$ 16,000	\$ 14,000	\$ 30,000
	<i>Task 3e: Streambank Stabilization Practices - revetment fencing, cattle fencing, stockpond repair.</i>		\$ 7,800	\$ 18,200	\$ 26,000
Task Product(s): Improved water distribution; grazing rotation; removal of brush and weeds; streambank stabilization; enhanced					
Success Criteria: Implementation of projects in a timely manner.					
Task 4:	Monitoring	Month 24	\$ 7,000	\$ 19,000	\$ 26,000
	<i>Task 4.a Citizen Monitoring</i>		\$ 7,000		\$ 7,000
	<i>Task 4.b Advanced Monitoring</i>			\$ 14,000	\$ 14,000
	<i>Task 4.c Monitoring Equipment</i>			\$ 5,000	\$ 5,000

CALFED WATERSHED PROGRAM BUDGET AND PROJECT SUMMARY II

Task Description		Completion date	Match funds	CALFED funds	Total
Task Product(s): Monitoring Data; Enhanced monitoring program					
Success Criteria: Accurate and precise data					
Task 5:	Reporting and Presentations	Month 24	\$ 5,000	\$ -	\$ 5,000
<i>Task 5a:</i> Quarterly progress reports: Progress reports on project implementation, including financial status, milestones reached, products completed, and general assessment of overall progress, including problems encountered or anticipated.					
<i>Task 5b:</i> Draft final report: Draft report summarizing the project implementation, achievements, product deliveries, financial status. To be sent to the Contract Manager for review and comment.					
<i>Task 5c:</i> Final report: Revised report incorporating comments from the Contract Manager and others.					
<i>Task 5d:</i> Presentations: Delivering at least one final summary presentation to CALFED.					
Task Product(s): Quarterly progress reports, final reports, presentations					
Effective useage of funds as described in reports and presentation					